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EXAMINER

RAY, GOPAL C

ART UNIT

PAPER NUMBER

2111

DATE MAILED: 04/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/810,229

Applicant(s)

JEDDELOH, JOSEPH M.

Examiner

Gopal C. Ray

Art Unit

2111

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 20 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8-14 and 17 is/are rejected.
- 7) ☒ Claim(s) 6, 7, 15 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/9/06, 8/22/05, 7/26/05, 6/24/05, 4/25/05,
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

1. Applicant's election without traverse of Group I, claims 1-17 filed on 3/20/06 is acknowledged. Claims 1-17 are presented for examination.
2. The drawings filed on 3/25/04 are acceptable by the examiner for examination purposes. However, the Office of Initial Patent Examination (OIPE) reviews drawings initially for publication purposes. Direct any inquiries concerning drawing review for publication purposes to the Office of Initial Patent Examination (OIPE). See MPEP 507 for detail information.
3. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification. Furthermore, all claims should be revised carefully to eliminate all grammatical errors and antecedent basis problems.
4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:  
A person shall be entitled to a patent unless –  
(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
5. Claims 1-4 are rejected under 35 U.S.C. 102(a) as being anticipated by applicant's admitted prior art (see Fig. 1).

As per claim 1, applicant's admitted prior art teaches, "a memory hub controller" in Fig. 1, element 128; "a memory module having plurality of memory devices" in Fig. 1, elements 130a-N; "a first and second portions of memory bus" in Fig. 1, elements 154, 156 and "an expansion module having a processor circuit" in Fig. 1, element 104.

As per claim 2, applicant's admitted prior art teaches, "a downstream bus" in Fig. 1, element 154 and "an upstream bus" in Fig. 1, element 156.

As per claim 3, applicant's admitted prior art teaches, "a plurality of memory devices adapted to provide a local memory space" in Fig. 1, element 108 and "a local memory bus coupled to the processor circuit" in Fig. 1, element 106.

As per claim 4, applicant's admitted prior art teaches, "a graphics controller to process graphics data" in Fig. 1, element 112.

6. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5 and 8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over applicant's admitted prior art in view of US Patent 5,623,534 granted to Desai et al. and/or common knowledge in the data processing art.

As per claim 5, the claim is rejected for the same reasons as discussed in the rejection of claim 1 with the exception of an "input/output processor to process input data and store the same in the memory devices". However, the above feature was well known to one of ordinary skill in the data processing art at the time the invention was made as evidenced by Desai et al. The reference of Desai et al. teaches the feature in col. 3, lines 29-33. It would have been obvious to one of ordinary skill in the data processing art at the time the invention was made to implement the above feature in the system of applicant's admitted prior art to obtain the claimed invention because both the prior art systems are analogous to exchanging information or data in a data processing

Art Unit: 2111

system and the above feature is a straightforward possibility from which one of ordinary skill in the art at the time the invention was made would select in accordance with circumstances without the exercise of inventive skill so as to allow the system to take advantage of the many benefits provided by the feature such as freeing the main or central processor from processing and storing I/O data.

As per claim 8, the claim is rejected for the same reasons as discussed in the rejection of claim 1 with the exception of "synchronous dynamic random access memory devices". However, the examiner takes Official Notice that the "synchronous dynamic random access memory devices" was well known to one of ordinary skill in the data communication art at the time the invention was made. This is a straightforward alternative choice already known in the data processing/communication art from which one of ordinary skill in the art at the time of the invention would select in accordance with circumstances without the exercise of inventive skill. It would have been obvious to one of ordinary skill in the data communication art at the time the invention was made to include the claimed feature in the system of applicant's admitted prior art because the "synchronous dynamic random access memory devices" would allow the system of applicant's admitted prior art to take advantage of the many benefits provided by the feature such as improve reliability and speed of the memory system by applying cancel function command where appropriate, etc.

8. Claims 9-13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over applicant's admitted prior art in view of common knowledge in the data processing art.

As per claim 9, the claim is rejected for similar reasons as discussed in the rejection of claim 1 with the exception of addition of a second expansion module with a second processor circuit. According to *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960), mere duplication of parts has no patentable significance unless a new and unexpected result is produced, so that it would have been obvious to one of ordinary skill in the art at the time of the invention to have a second expansion module with a second processor circuit in the applicant's admitted prior art system. This is a straightforward possibility from which one of ordinary skill in the art at the time the invention was made would select in accordance with circumstances without the exercise of inventive skill so as to allow the system to be compatible with a widely used standard and to take advantage of the many known benefits provided by the feature such as versatility of the system.

As per claim 10, applicant's admitted prior art teaches, "a third memory module having a third plurality of memory devices and a third memory hub" in Fig. 1, elements 130a-N.

As per claims 11-13, the added limitations of the claims are rejected for similar reasons as discussed in the rejection of claims 2-4 respectively.

9. Claims 14 and 17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over applicant's admitted prior art in view of common knowledge in the data processing art as applied in claim 9 and further in view of US Patent 5,623,534 granted to Desai et al.

As per claims 14 and 17, the added limitations of the claims are rejected for the same reasons as discussed in the rejection of claims 5 and 8 respectively.

10. Dependent claims 6, 7, 15 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an Examiner's Statement of Reasons for Allowance:

The claimed invention is directed to "a system and a method for memory hub-based expansion bus". The examiner has done complete search and found no prior art of record, alone or in combination, teaches or fairly suggests additional limitation(s) of each dependent claim such as "a memory controller coupled to a switch node of a switch circuit to receive memory command packets and translate the same into memory device command signals" in combination with the remaining elements as claimed in claim 6, etc. Therefore, the invention as claimed in dependent claims 6, 7, 15 and 16 is considered allowable because combinations recited in the claims are patentably distinguished from the prior art of record.

Any comments considered necessary by applicant must be submitted in response to this office action to avoid processing delays. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant is urged to consider the references. However, the references should be evaluated by what they suggest to one versed in the art, rather than by their specific disclosure.

The prior art submitted by applicant on 2/9/06, 8/22/05, 7/26/05, 6/24/05, 4/25/05, 2/22/05, 8/23/04, 6/7/04 and 3/25/04 have been considered by the examiner and made of record in the file. If applicants are aware of any prior art better than those are of record, they are required to bring the prior art to the attention of the examiner.

Applicants are also reminded that each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in 37 CFR 1.56. Applicants are advised to submit any information material to patentability in accordance with 37 CFR 1.97 and 1.98.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gopal C. Ray whose telephone number is (571) 272-3631. The examiner can normally be reached on Monday - Friday from 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Cottingham, can be reached on (571) 272-7079. The fax phone number for this Group is (571) 273-8300.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [[john.cottingham@uspto.gov](mailto:john.cottingham@uspto.gov)].

All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published



in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to TC central telephone number is (571) 272-2100. Moreover, information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lastly, paper copies of cited U.S. Patents and Patent Application Publications ceased to be mailed to applicants with office actions as of June 2004. Paper copies of Foreign Patents and Non-Patent Literature will continue to be included with office actions. These cited U.S. Patents and Patent Application Publications are available for download via Office's PAIR. As an alternate source, all U.S. Patents and Patent Application Publications are available on the USPTO web site ([www.uspto.gov](http://www.uspto.gov)), from the office of Public Records and from commercial sources. Applicants are referred to the Electronic Business Center (EBC) at <http://www.uspto.gov/ebc/index.html> or 1-866-217-9197 for information on this policy. Requests to restart a period for response due to a missing U.S. Patent or Patent Application Publications will not be granted.



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